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# • EDITORIAL •

## Cycles? Cycles in Economics, Cycles in Business, Cycles in Standards of Living

One can hear almost anywhere, to-day, "MONEY", "money", "MONEY". The TREND at this time is MORE, MORE, and more. The cry is constantly echoing, more PRODUCTION, more PROFITS, more WAGES, and more and BETTER LIVING.

Is there no LIMIT? Has there ever been a time like this? Yes! There have been such times, and, there always has been a RECKONING.

It is still a fact that the average man is NOT INTERESTED in economic trends. He and she are interested only in their individual living standards. There is a too general attitude of, "All I need to know about MONEY is, how to make some." Economic theories are considered merely the dismal science of no importance outside the studies of college THEORISTS.

History records that there have been periods of PROSPERITY, and that such periods have been followed by periods of DEFLATION. In North America, the early Canadian economy was closely related to that of the United States. An examination of the United States early economy, with its percussions in Canada, is reasonably comparable with Canadian business and its periodical cycles.

For over one hundred years, business cycles have been recorded in statistical and comparative form. Numerous factors are involved but recitation of the wholesale commodity prices and the general business trends from the normal measurement of "100" should substantiate the fact that there were prosperity inflation periods and corresponding depression deflation periods.

The first modern economic upheaval on this continent occurred during the civil war of 1861 to 1864. There was a period of prosperity starting in 1860 before the civil war. On the declaration of war, this prosperity reversed and turned into a period of depression for the first three years of the war. The war prosperity was not appreciated till the last year of this war. During the war the wholesale price volume and factor skyrocketed from a low factor in 1861 of about 84, to the high in 1864, the last year of the war of about 230. This was during the confederate money period. From the end of the war when confederate money was outlawed and valueless, there was, during 1865, a start of a deflation depression. The return on bonds during the war period varied from 7½% at the start of the civil war to a low of 5½% the last year of the war. The national debt rose during this period from $2. per person in 1860 to a high about 1870 of $63. per person.

The depression following this period lasted thirteen years and the trend did not really get back to normal till the year 1880. This was a small local war which affected only this continent. If it took thirteen years to

come back in business from a local war, how much greater will be the effect of a world war?

During the next years there were various periods of prosperity and depression, but the next major economic upheaval occurred during the first world war of 1914 to 1918.

Let us examine the business statistics and conditions during that period. Economic conditions were, during the few years before 1914, close to normal. There was, however, during 1914, a minor depression in business volume. Without going into too much detail, a book could be written on this theme, we find that the wholesale volume price factor rose from a 1914 normal of 100, aided by the easy money of war prosperity, to the high of about 245 in the year 1920. The war ended in 1918. It should be noted that this inflation lagged into 1920, some time after the end of the war, until demobilization had been practically completed. This was no doubt due largely to the fact that the war took place in the remote country in Europe, resulting in a time and volume lag.

In business volume, the below normal 1914 factor of about 40% rose, due to war prosperity, to the 1916 maximum factor of about 240% of normal. The 1914 bond yield of 4% rose to 5% in 1918 and to 5½% by 1920. By 1920 the per capita debt had also risen to somewhere around $228.

The first world war prosperity inflation turned into a post-war depression during the period of 1920 to a low in 1921 of about 45%. This period was followed by a period of artificial prosperity which gradually brought a prosperity period to a climax in 1929. This year can be well remembered by most of us. The depression has however been estimated as being of the duration to normal business to the year 1931, that is, thirteen years after the end of the 1918 war end. This period of artificial prosperity was again followed by a most violent depression which by 1932 literally brought business to a standstill. Recovery in its normal trend was slow and did not come back to the suggestion of an era of prosperity till 1937. This recovery slipped back into another business depression of about 50% in 1938. From that point on there was an indication toward prosperity which again ran into the war period in 1939. From that period on there was another period of war prosperity. This brings us up to the present period.

WILL THE ECONOMIC TREND TAKE US INTO ANOTHER POST-WAR DEPRESSION DEFLATION PERIOD? The laws of economics indicate surely, YES, indeed YES.

The "ARTIFICIAL PROSPERITY BUILD-UP" after the last 1914-1918 war period worked temporarily till 1929. However, after that we still had our day of reckoning in returning to the natural laws of supply and demand. In the past the natural LAWS OF SUPPLY AND DEMAND ULTIMATELY DID PREVAIL.

It has been proven in Canada that inflation can be controlled. This has been amply demonstrated in the recent war period. Whether the deflation can be controlled, has still to be demonstrated. The average person may not be patriotic enough to co-operate as he and she did during the war period. We, at least the majority of us, like to throw money around. We like to do this even if we do eventually have to "PAY THE PIPER." Canada has been doing a good job of "LIFTING THE LID" off inflation control. We as a country have been greatly blessed in this respect.

The pressure of demands for increased wages, and increased profits, will only tend to add to the inflationary pressure. Those who are making these demands are in the class who are ignorant of "ECONOMIC THEORIES" and, being such, cannot appreciate that this build-up of purchasing power, the limit of their visualization of "TRENDS", will ultimately have to be levelled and brought back to the natural "SUPPLY AND DEMAND" basis, through either a voluntary aceptance of a normal standard economy or under the penalty of a naturally accumulating adjustment, resulting in a corresponding violent period of "DEFLATIONARY DEPRESSION."

It might be said that it is a case of "PAY YOUR MONEY AND TAKE YOUR CHOICE." However, management, and government, has the responsibility of seeing that those of us, in that class, are controlled so the innocent will not have to suffer with the "GUILTY".

The wider study of basic economic theories is desirable and even necessary. They should be widely, more widely, disseminated so that the average person can appreciate economic progress conditions. Elementary basic economics should be introduced into the course of studies in citizenship in our schools so that a sound judgment of values may be attained by those who leave school at the age of 14 to 16 years to enter industry. This "money grabbing" viewpoint should be converted into "money saving" so as to provide livelihood on an economically sound standard.

By some manner or means, this education in economics should still be given to our Canadian population generally, especially where this knowledge does not exist.

Will we take "DEFLATION" sensibly or will we demand it only by "FORCE?" The FORCE OF THE LAWS OF SUPPLY AND DEMAND.

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# Our Twenty-fifth Annual Meeting

Plans are proceeding quite satisfactorily for our forthcoming Annual Meeting to be held at the General Brock Hotel, Niagara Falls, on June 14th and 15th.

Our hosts on this occasion will be the Hamilton and Niagara Chapters, and they are putting a great deal of effort into the preparations for our meeting this year, which promises to be a memorable event.

In this issue is published the program, and attention is directed to the technical session which will be held on Friday afternoon following the Annual Meeting. For this occasion, we have been most fortunate in securing Mr. Edmond LaRose, of the Bauch & Lomb Optical Co., Rochester, N.Y. Mr. LaRose is a recognized authority on budgeting and forecasting, and this meeting should provide a wealth of information for those who are able to attend.

Preparations for our annual dinner have been made to celebrate in an appropriate manner our Silver Anniversary. For this occasion our principal speaker will be Mr. J. W. Fisher, who is well known throughout Canada as a C.B.C. commentator. Mr. Fisher is a graduate lawyer and member of the bar of Nova Scotia, having graduated from Dalhousie University in 1938. Possibly there is no one who knows Canada from coast to coast quite

so intimately as Mr. Fisher, and it is this wealth of information that has made him famous to radio listeners throughout this country. In addition to his regular broadcasts, Mr. Fisher has been C.B.C.'s commentator at the two historic Quebec conferences as well as the U.N.R.R.A. conference in 1944. At present he is covering the U.N.O. conference in New York and the U.N.R.R.A. conference in Atlantic City, and it is expected that when he speaks to us at our annual dinner, he will be able to give us the latest information he has gathered on Canada's world trade and economics. The subject of his address will be "It's Up To Us", and will deal with his travels across the country and at the conferences.

Mr. Fisher is also featured over stations of Radio-Canada, speaking in French, and these commentaries have been shortwaved from time to time to the Republic of France.

Members are reminded that they are cordially invited to bring their wives and, as will be noted in the program, special attention will be given to the entertainment of the ladies.

Advance notices and hotel reservation cards have been mailed to all members, and those who plan to attend are asked to mail their cards immediately so that they will be assured of suitable accommodation.

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# New Members

**Bay of Quinte**

F. R. Clarke, Corbin Lock Co. of Canada Ltd.

**Calgary**

F. J. Desreux, Chinook Building Supplies.
D. H. Pennington, Alberta Pacific Grain Co. (1943) Ltd.
R. L. Hawthorn, Alberta Pacific Grain Co. (1943) Ltd.
L. M. Youell, Pacific Petroleums Ltd.
W. G. Aldous, 204 - 27th Avenue S. E.
D. A. Westfall, 126 - 6th Avenue W.
William Hadwell, 328 - 3rd Avenue W.
Melvin C. Riley, 408 - 14th Avenue E.
D. P. James, 1011 - 13th Avenue W.
Thomas Fletcher, 1321 - 11th Avenue E.
C. H. Meyer, c/o Calgary Business College.
J. H. Kuntz, 223 - 12th Avenue E.
D. E. Reid, 206 - 2nd Street W.
J. A. Foord, 416 - 14th Avenue N.E.
C. R. King, 206 - 2nd Street W.
Miss Sylvia M. Lund, 320 - 12th Avenue N.W.
A. H. Olafson, 620 - 7th Avenue W.
N. F. Jackson, 406 - 10th Avenue N.W.
E. H. Stevens, 318 - 18th Avenue W.
Peter Ternes, 329 - 12th Avenue E.
J. R. Currie, 2440 - 25a Street S.W.
H. Johnston, 602 - 2nd Avenue W.
L. P. Rennie, 1705 - 11th Avenue W.

**Edmonton**

Miss Iva P. Middleton, 9714 - 85th Avenue.
J. Bouweester, 8955 - 8th Avenue.
R. Dakin, 10415 - 86th Avenue.
F. M. Sawyer, 10134 - 108th Avenue.

**Fort William-Port Arthur**

William Storozuk, Hugh Parslow & Co. Ltd.

**Hamilton**

Michael Sansone, International Harvester Co. Ltd.
John H. MacLachlan, Parisian Laundry.
James W. McLean, McLean Gas Products (Canada) Ltd.

**Kitchener**

G. M. Egoff, Sheldon's Ltd., Galt.
T. R. Richardson, Imperial Bank of Canada, Galt.

**Montreal**

K. J. Mulvaney, Canada Linseed Oil Mills Ltd.
R. G. Shaw, R.C.A. Victor Ltd.
D. S. Beaman, Julius Kayser & Co. Ltd.
J. W. Reid, 289 St. Peter St., St. Johns, Que.
Pierre Pelletier, 1365 Bernard Ave. W.

A. E. Bishop, P. S. Ross & Sons.
J. R. Bourgeois, Provincial Revenue Offices.

**Lethbridge**

Arthur Brown, Porter Estate Ltd.
John A. Williams, C.A., 211 Sherlock Building.

**Niagara**

R. E. Heximer, St. Catharines Credit Agency Ltd.

**Ottawa**

J. H. Loomer, Dept. of Reconstruction and Supply.

**St. Maurice Valley**

Frank La Rue, Shawinigan Chemicals Ltd.
Rosaire Lajoie, Shawinigan Engineering Co. Ltd.
G. R. Andrews, Shawinigan Engineering Co. Ltd.

**Toronto**

M. S. Richmond, C.A., Stone, Smith & Conway.
Captain R. C. McNeil, On Active Service.

**Vancouver**

David R. Alexander, Burroughs Adding Machine Co.
Lorne R. Dawson, Restmore Mfg. Co. Ltd.

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# Chapter Notes

## CALGARY CHAPTER

"Pattern in Efficiency" was the subject given by Mr. William Gowan, of Edmonton, at the regular dinner meeting of the Chapter held in the Avenue Grill, on Wednesday, April 10th, 1946. Mr. Gowan is the Alberta manager of International Business Machines, and the program consisted of slides and moving pictures featuring "Punch Hole Accounting". Mr. Ralph Davis, of Calgary, Alberta, Supervisor of Mechanical Service for the Company, assisted Mr. Gowan. (It appears to the writer that the Accounting and Issuing of "Family Allowance" cheques is an example of this method.)

The largest attendance of the year was recorded when 53 members, students and visitors were present.

## FORT WILLIAM-PORT ARTHUR CHAPTER

One of our own members, A. G. Scott, R.I.A., gave a report to the Chapter at its April meeting on the subject of "Accounting in the Pulp and Paper Industry". Mr. Scott dealt particularly with that part connected with the cutting of pulpwood, camp costs, road construction, river driving and mill deliveries, etc. He estimated that the cost of pulpwood delivered at the mill had increased over 60% since 1939.

The guest speaker was W. S. Bryant, Government Annuities Representative, who spoke on the various types of annuities—immediate, deferred and pension. Mr. Bryant was subjected to a barrage of questions following the presentation of his subject.

On May 20th the Chapter will meet at the Royal Edward Hotel to hold its Annual Meeting.

## HAMILTON CHAPTER

The Hamilton Chapter of the Society of Industrial and Cost Accountants held its final meeting of the 1945-46 season on Thursday, April 18th, at the Royal Connaught Hotel.

The Treasurer's Report showed a substantial balance on hand which, together with a gratifying increase in membership, completed a very successful year.

The new officers elected were: W. Baillie, R.I.A., Chairman; H. Bricker, C.G.A., R.I.A., 1st Vice Chairman; W. Ward, R.I.A., 2nd Vice Chairman; and Allan Wright, R.I.A., Secretary-Treasurer. Those elected to the Executive Committee were: W. H. Furneaux, R.I.A.; Geo. Greenhough, R.I.A.; W. L. McMahon, R.I.A.; J. Bracewell, R.I.A.; A. Gabel, R.I.A.; J. Farnsworth, R.I.A.; R. J. Menary, C.P.A., R.I.A.; W. L. Edwards, C.P.A., R.I.A.; A. Brown, L. Simenton, W. C. Sparham, R.I.A., and R. Spence.

The meeting was later addressed by H .S. Ireland, General Manager of the Canadian General Rubber Co., of Galt. His subject, "Daily Profit and Loss Statements", provoked considerable thoughtful discussion. The speaker emphasized five outstanding facts required in such statements viz.: why, where and when did we earn or lose, who caused it and how can we improve. Mr. Ireland developed the point, frequently overlooked in progress statements, that information is as perishable as goods and is depreciated by time.

## KINGSTON CHAPTER

The regular monthly dinner meeting was held at the Frontenac Hotel on 25th April with approximately thirty members and guests attending. Among those present were Mr. A. G. Howey, the guest speaker, and Mr. J. N. Allan.

Mr. Howey's subject, "Do Present Day Financial Statements Give the Facts?", brought out the complexity of legislation and governmental regulations with which industry and the accountant is confronted to-day. Particularly he dealt with the time lag involved in settlements regarding renegotiation, excess profits tax, etc., and the resulting difficulty of preparing financial statements that are more than mere estimates. His recommendation was that this situation could be improved by giving individuals actively engaged in industrial accounting a voice in legislation affecting industry. This, he believed, could best be accomplished through the efforts of accounting societies such as our own.

The speaker was introduced by Mr. J. N. Allan and thanked by Mr. A. Taylor of the Aluminum Company of Canada, Ltd.

Reports were received on membership and the educational program which will commence in the Fall. Plans were made for the May meeting at which the election of new officers will be held.

A highlight of the meeting was the presentation by Mr. Howey of the first R.I.A. diploma to be awarded to a member of the Kngston Chapter. The successful candidate, Mr. G. F. Cassidy, of Canadian Industries Limited, Nylon Division, actually qualified for his degree before transferring here from Montreal a short time ago. Mr. Howey congratulated Mr. Cassidy and expressed the hope that other members would achieve the same success.

Kingston Branch feels most fortunate in having a registered member so soon after the formation of our Chapter.

## KITCHENER CHAPTER

The stark bare fact that Canada is to-day facing the gravest period in its business history was brought home to members and guests of Kitchener Chapter by I. G. Needles, vice-president and sales manager, tire division, of the B. F. Goodrich Rubber Co., of Canada Ltd., Kitchener, at the April meeting held at the Iroquois Hotel, Galt.

With rising costs, changing prices, lifting of subsidies and restless labor conditions, the greatest problem Canada faces is to hold her world market. Thirty per cent. of the trade and commerce in this country is devoted to world trade. The big question is how to short circuit costs to compete with cheaper labor, less expensive older machinery of other countries which is beginning to make inroads on the international scene.

Former tire controller for the Dominion Government, Mr. Needles spent two years in Ottawa where he helped set up the tire rationing system. Dealing specifically with the tire industry he said the most difficult poser in that line at the moment is securing new moulds for the post-war tires. D. G. Seebach, of Kitchener, introduced the speaker, and a vote of thanks was tendered by Mel Walker, of Kitchener. Vice-chairman E. C. Codling, Chairman, presided at the meeting, at which members of the Hamilton Chapter were invited as guests.

J. Nelson Allen, secretary-manager of the Canadian Society, announced that three new Chapters had been formed, bringing the total to 18. By the end of April the membership is expected to be 1,700, an increase of 400 members in a year. Kitchener Chapter has 86 members.

## LETHBRIDGE CHAPTER

Since the formation of the Lethbridge Chapter in January a total of five semi-monthly meetings have been held to date. Organizational details have occupied considerable time and a full slate of committees are most active. At each meeting the Program Committee, under the chairmanship of Mr. D. J. Brownrigg, has presented a speaker selected from the Chapter membership. Subjects covered have included the following: "Income Tax", "Internal Audit", "Budgetary Control" and "Depreciation". This procedure has served to give the members of our new Chapter an active part in the meetings and has resulted in extremely interesting and lively discussions.

We are happy to report that Mr. D. C. Robison, our Secretary, is now recovered from his serious illness and we look forward to his active participation in Chapter affairs shortly. Mr. Jack Craine has taken over the Secretary's work in connection with membership. The nucleus of a student group has been formed and their activities will commence in June.

At the April 11th meeting we bid farewell to Treasurer Jim Kain, who is moving to Vancouver, B.C., as manager of Chapmans' Recreations. New members recently welcomed are: Mr. A. Brown, Porter Estate Ltd., and Mr. J. A. Williams, C.A.

## VANCOUVER CHAPTER

The regular monthly meeting of the Vancouver Chapter, held on March 14th was, as usual, a marked success.

Mr. J. P. Collins, Regional Supervisor of Government Vocational Training Plan, was the guest speaker, and he outlined very thoroughly what

the government is doing to help the returned veteran re-establish himself. He also pointed out how different courses, such as our own, had been made available to the returned men and explained how these were financed through the Government Vocational Training Plan.

The meeting was exceptionally well attended both by members and guests, and was rounded out by the showing of two films which were received very enthusiastically.

The regular monthly dinner meeting of the Vancouver Chapter, held in the Hotel Georgia, on April 11th, was up to the customary high standard, and brought out a large attendance of members, and attracted a good many guests.

Mr. E. S. H. Winn, K.C., Chairman of the Workmen's Compensation Board of B.C., gave an outstanding address on the workings of the Compensation Act in British Columbia. He went very fully into rates, calculations, etc., giving an outline of the services provided by the Board for injured workmen. To sum up his talk briefly, he emphasized the co-operation which exists between the employer, employee, and first-aid men, in the general policy of prevention of accidents, co-operation existing with the Board in all matters. He stated that British Columbia enjoys the highest benefits and with comparatively low compensation rates. Mr. Winn's talk was interwoven with reminiscences of his own life's experiences, which added much to the enjoyment of the whole.

To round out the evening's meeting a sound film was presented by Mr. Roberts, of the National Film Board, entitled, "River of Paper". This proved to be both educational and interesting, as it followed the process of paper making from timber cutting to the final finished product.

Murray Gilmour was in the Chair. The guest speaker was introduced by Fred Coburn and the general applause accorded the speaker, spoke unanimously for the feeling of every person present.

The attendance prize was won by Mr. DeWolfe.

The quality of the meetings of the Vancouver Chapter has been on a very high level all season and our next one, which will be addressed by Mr. Winn, K.C., of the Workmen's Compensation Board, will also be found very interesting we feel sure.

## WINDSOR CHAPTER

The Windsor Chapter was host to a large number of members of the Detroit Chapter of the N.A.C.A. which has come to be an annual event of great interest. The banquet hall of the Norton-Palmer Hotel was filled by members of the two Chapters who were well rewarded for their attendance on the talk given by William Eastwood, Associate Director of the Detroit Chapter.

Mr. Eastwood stated that labour has been getting a good percentage of their demands while producers have been caught between increasing costs and the rigid ceilings imposed by officials directing price control. He emphasized that cost accounting would be all important during this period of reconversion when inflation threatens a controlled economy.

# Current Legislation

By ADAM C. ZIMMERMAN, B.A.

**Order in Council 1449**—Pursuant to the provisions of The War Income Tax Act, the Minister of National Revenue may, in his discretion, allow depreciation at not more than double the normal rates allowed in respect of plant and equipment built or acquired in a period to be fixed by the Governor in Council if the taxpayer is, in the opinion of the Minister, making a new investment by building or acquiring plant and equipment. The period for this purpose as fixed by the Governor in Council expires on the 31st December, 1946, or on the day two years from the day organized hostilities between Germany and Canada ceased, whichever date was the earlier. However, to clarify the point and to encourage expansion, conversion and modernization of industry that period has, by the said Order, been extended to the 31st March, 1948. A taxpayer, seeking advantage of this provision is required to file his plans and make his application on or Before the 31st March, 1947. The last mentioned date is vital. No application for an increased depreciation will be heard if filed later than the 31st March, 1947, as aforesaid.

While this extension may prove an encouragement, the taxpayer and the industrialist does not escape from the discretion of the Minister, nor is he assisted, except by precedent and the argument of his own case, in determining what constitutes a new investment for the purposes of this provision.

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**Order Number 622** of the Wartime Prices and Control Board has effected consumer credit by providing as follows:—

> Subject to the provisions of Order 8528 (section 9) no seller or agent on behalf of a seller shall sell or offer for sale at retail any goods under a charge account unless the price for such goods is due and payable not later than the 10th day of the **second** month following the month in which such goods are purchased and further
>
> Every seller of goods to which this Order applies shall quote the cash price to every prospective buyer and every price tag, card or label attached to or displayed with any goods shall show the cash price for the goods. All maximum prices fixed by or under the authority of the Board shall be deemed to be cash prices, except to the extent a contrary intention is expressed.

# Current Literature Digest

By HAROLD BRICKER, C.G.A., R.I.A.

## GUARANTEED EMPLOYMENT AND PRODUCTION PLANNING

The address of the president of the Procter & Gamble Co., given before the American Management Association, has been published in booklet form and distributed to the shareholders. It is a very interesting summary of the responsibility of management toward stabilized employment.

The text is based on the experience of his company's plants and suggests that industrialists are facing the toughest set of social problems this world has ever seen. Management-labour relations is the No. 1 problem in America (and in Canada), to-day. Most of our problems can be overcome only in the achievement of a stable economy worked out by solving the problem of creating reasonably steady employment. This is the job of the manufacturer.

## MAKING AN OFFICE OPERATIONS AUDIT

The current edition of "The Management Review" published an article on the practice of conducting regular audits of office operations. Some of the principal techniques used in the operations audit are briefly set forth below:

1. Policy questionnnaires: An audit might highlight any inconsistencies or inadequacies in existing policies through such questions as:

(a) Are the policies of top management clearly understood with relation to the principal activities of the office, in the departments of purchasing, accounting, personnel, etc.?

(b) Are these policies clearly set forth in writing to the interested parties so that no misunderstanding can result?

(c) Is complete compliance with all the expressed policies obtained?

(d) Are any policies outmoded and unsuited to efficient operation under present conditions?

2. Organization Charts and Questionnaires; the basis for delegating all responsibilities can be studied through organization charts. Manuals should contain write-ups detailing responsibilities and duties. Each of the questions under this heading should be submitted on a separate sheet so that detailed answers may be received which will facilitate the audit study.

(a) To whom do you report?

(b) Who reports to you?

(c) What is the principal duty of your unit?

(d) What are your specific responsibilities with respect to this duty?

(e) What are your relationships with other sections or units?

(f) What are your relationships with branches or agencies?

(g) What is the extent of your authority?

(h) What reports do you receive, who sends them to you, and how do you use them?

(i) What reports do you make out, to whom are they sent, and to what use are they put?

(j) What reports do you need, and to what end would they be used?

(k) What committees are you a member of or do you consult with?

(l) What constructive suggestions and general comments would you care to make?

3. Work Distribution Charts; duties outlined and assigned to departments, sections, and individuals.

4. Process Charts; procedures and related group procedures are pictured.

5. Forms, reports and records; the value and importance of various reports can be studied through the information of the section and person authorizing its use, its frequency of issue, number of pages, number of copies prepared, the names and departments to which each is sent.

6. Work Measurement; consisting of determining the standard quantity of work required for a given activity within a certain time, and the actual work done in comparison with that standard.

7. Physical Conditions; the quantity and quality of work output considering space, noise, light and ventilation and their significant effect on the clerical staff in respect to flow of work.

8. Personnel Administration analysis; this difficult phase of audit study must be given special care and attention by an experienced analyst.

9. Progress reporting and analysis; top executives in their capacity to think, act and plan constructively, must receive factual information effectively. Through analysis of the existing records, statistics and reports, in their functions, better and more efficient records and the elimination of useless or unnecessary reports can be recommended. The degree in which subordinate executives are performing their assigned duties and the existence of adequate production standards and quality controls may be appraised through the following typical questions:

(a) Are the various departments on a measured production basis to the greatest possible extent?

(b) Have individual repetitive jobs been studied in order to determine and establish reasonable productive standards?

(c) Do suitable controls safeguard the quality of clerical work?

(d) Are work volumes and production figures used to forecast trends, measure supervisory efficiency, and point out training needs?

(e) Does each organized unit have a personnel allotment based on its work volume?

(f) Are unit costs of production for each department or section the lowest obtainable under present conditions?

(g) Are personnel allotments varied in accordance with changing conditions within the unit?

When key officials and individuals concertedly attack the question of office improvement on an organized basis, narrow departmental viewpoints tend to disappear, to be replaced by company-wide attitudes co-ordinating

the operations of the modern business office in the foundation of performance success.

## DO WE MISTREAT ADMINISTRATIVE EXPENSE IN INVENTORY?

An article in the "Journal of Accountancy" by J. S. Seidman brings out some interesting points of view on this question.

It is generally conceded that two equally competent acountants may reach different conclusions as to the cost of the same inventory. This is more likely according to the opinion as to whether Administrative expenses are considered part of the cost. It is therefore evident that accountants, including cost acountants, have something to defend, or to adjust. Due to experiences growing out of munitions accounting in the war period it would appear that an adjustment is indicated.

The tragic incident of having a book inventory, of a munitions contract, of $10,000. on a given date billed to the government at $12,500. is not an unknown condition and this is the work of accountants, in contract termination claims. This difference of $2,500. is due to the fact that in termination inventories accountants considered items COSTS that were not considered costs for current accounting purposes. It is little wonder that accountants may be asked, "When is an item of cost not an item of cost?" It is little wonder that the mystified layman is wondering, how do accountants get away with this.

In reconciling these figures the accountant might offer such opinions as:

1. Going back to the time when the memory of man runneth not, inventories costed for statement purposes, are based, in most cases, on factory or production cost, rather than on total cost.
2. This is the more conservative cost approach.
3. Administrative expenses are matched with sales (and termination claims are of the nature of sales).
4. Termination rules expressly provide for administrative expenses.

Does this punishment fit the crime and does this rejoinder constitute an impregnable defense?

The $10,000. basis for balance sheet inventories is sanctified by tradition, but tradition itself is on trial in view of recent pronouncements by the accounting profession that tradition has in some respects been found wanting. What is the justification for admitting beyond the yearly financial statement gates the factory or production costs but detaining and diverting ADMINISTRATIVE expenses that are allocable to production?

What is conservative in the balance sheet may be radical in the income statement. There is generally an ultimate reckoning in appraisals or tax revision. There may after all be some merit in the viewpoint of the squire who, in his little pocket record book, charges all expenses to cost. What makes what we are doing so right?

While administrative expenses have been mentioned here there are other factors, for example, interest on inventory investment. Administrative expenses are often incurred applicable to future production rather than to existing production although there may as yet be no related physical inventory. This does not entitle the accountant to forget about deferred charges

which are in theory only inventory accounts, in another form. Why should all the administrative expense be matched against current sales?

The question is not brought to a conclusion but it is indicated that the present policy of pricing inventories at cost or market whichever is the lower is obsolete and that other factors such as administrative expenses should be inventoried.

Is there not some logic in the premise that the book inventory should be $12,500. so that on the termination of a contract it can be billed out at that figure? We should not mention the high expense involved in the present tendency to reconcile the $10,000. figures with the $12,500. figures.

Accounting policies and ethics are quite standard, but, they surely are not so hide bound that they cannot modernize somewhat. There is plenty of evidence that inventorying policies are changing in that they will include administrative expense and other factors?

As competition tightens, so cost accounting must get closer to the facts.

### ARE YOU KEEPING YOURSELF AWARE OF TRADE TRENDS?

To-day, in Canada and in some other countries, but not in all countries, we are doing business on a cash basis.

To-morrow, we may be doing business on the time payment or instalment basis.

Are you acquainted with the "hire-purchase" method of doing business?

To-day is the to-morrow we were looking forward to yesterday.

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# The Society of Industrial and Cost Accountants of Ontario

# ANNUAL MEETING

### THURSDAY, JUNE 13th

9.00 A.M. to 10.00 A.M. .....Registration

10.00 A.M. .....Meeting of Council

12.30 Noon .....Luncheon

2.00 P.M. .....Annual Meeting

4.00 P.M. .....Meeting of Council for 1946-47

7.00 P.M. .....Annual Dinner
Entertainment

The ladies will be addressed by Mrs. W. A. Stead, of Niagara Falls, on Indian Legend.

JOHN W. FISHER
Canadian Broadcasting Corp.

## Canadian Society of Cost Accountants and Industrial Engineers

# ANNUAL MEETING

**FRIDAY, JUNE 14th**

9.00 A.M. to 10.00 A.M. .....Registration
10.00 A.M. to 12.30 P.M. .....Directors' Meeting
12.30 Noon .....Luncheon
2.00 P.M. .....Annual Meeting
4.00 P.M. .....Technical Session
Speaker—Mr. E. S. LaRose, Rochester, N.Y.
Subject—"Modern Technique for Budgeting and Controlling Current and Future Operations".
7.00 P.M. .....Annual Dinner
Speaker—Mr. John W. Fisher, Toronto
Subject—"It's Up To Us"
Entertainment

The ladies will be conducted on a tour as guests of the Niagara Parks Commission at 2.00 P.M. The ladies are also invited to attend the luncheon and dinner.

**SATURDAY, JUNE 15th**

9.30 A.M. .....Meeting of Directors for 1946-47

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# What Have Cost Accountants Learned Under War Conditions?

By H. R. SMYTH, C.A., Executive Director, The De Havilland Aircraft of Canada, Limited.

Address Before the Toronto Chapter

When I was asked to speak to you, it was suggested that my subject should be "What Have Cost Accountants Learned Under War Conditions?" You will all appreciate, I am sure, that such a subject covers a wide field and is undoubtedly beyond the capacity of anyone in a short address to do full justice to it. Because of the broad scope of the subject, I will have to confine myself largely to generalities but will also attempt to make some reference to specific problems, particularly those which have come within my ken during war years.

Having acted as Assistant Comptroller of the Department of Munitions and Supply for a period of approximately twenty months, during the earlier or formative stages of that department, I was naturally enough brought in close contact with the problems of war Government and very particularly with those problems having to do with administration, finance and accounting. As you all know, the Department was charged with the general responsibility of procurement of war supplies and I would like to pay tribute to the group of men who laboured for long months and, in many cases, years, with little regard to considerations of health and financial reward. It was an inspiration to work with these men and to feel that I could have some part in their efforts. As mentioned previously, my job had principally to do with problems of finance and administration and in discharging these duties, I was brought closely into contact with the officials of the Cost Accounting Division of Treasury and with a number of the financial representatives of contractors and sub-contractors. I believe I can say without any danger of contradiction that the cost accountants of this country did a major job in facilitating the war program by coming up with cost figures which in the final analysis were the justification for the payment of the billions of dollars disbursed for the war account. You accountants may frequently feel that your jobs are rather prosaic and lack the sparkle and glamour of other jobs. While this may be true to some extent, it is also true that the war effort would not have functioned with anything like the degree of smoothness that was attained, without your assistance. Probably many of you have felt critical of so-called "Government red tape" on many occasions and while I can include myself amongst that number, I also recognize—as I believe you do—that no game can be successfully played without rules.

I am very diffident about laying down rules for the cost accountant in such a general discussion, the reason being that there are too many rules to encompass in such a short address; however, it may be in order if I refer in a general way to some of the requirements that have developed as a result of government controls and the benefits to the manufacturer that have become apparent from the keeping of accurate cost accounts. These cost accounts generally had to be submitted for every type and

class of industry engaged in war work. Many of them were very simple accounts and others very complex, all depending on the nature of the production. The general requirement was that the accounts had to reflect costs under the broad headings of labour, material and overhead and that they had to stand the scrutiny of the Treasury Cost auditor. This is stating the requirement, of course, in its simplest form and depending on the complexity of the operation, much supporting detail had to be submitted. Complications also arose in many cases where the contractor was engaged in ordinary commercial production as well as on war contracts. In such cases, the proper allocation of the charges had to be accurately compiled and carefuly supported as otherwise the contractor would run into disallowed costs. No doubt a number of you have encountered this difficulty.

Probably many of you have been engaged in one set of problems and have reduced your problems largely to routine. Perhaps it will be in order to digress on the several types of cost reports which have been required. Generally speaking, these consist of:

(a) The very simple set of accounts kept by a trader or merchant who bought articles or materials for re-sale. These cases are so simple that, strictly speaking, cost accounting in the ordinary sense of the term was not involved. Nevertheless, the merchant had to justify his costs either to the Cost Audit Investigator or through the later procedure of Renegotiation of Profits.

(b) The manufacturer producing some unit or units required by the Government. This class represented the great majority of the Government contracts and ranged all the way from such small units as bolts and nuts to such large items as cargo ships, destroyers, corvettes, etc. In between was a great variety of material and articles such as aircraft, military cloth, ammunition, shells, flares, signal equipment, guns and tanks. One very useful by-product of the war has been the acquisition of a tremendous fund of technical knowledge which has been acquired as a result of Canada's vast war production. It is probably appropriate at this time to refer to the very liberal education accountants have received as a result of these broadened horizons.

(c) There is a third and quite important type of cost accounting which has of necessity been extended and developed during the war. I refer to those industries making articles by continuous processes — for example, the petroleum and chemical industry and, very specifically, the Government-owned rubber plant at Sarnia. The problems of cost accounting in such an industry are, of course, quite different from those encountered in the ordinary factory. They are somewhat similar to those encountered in the packing house industry where every part of the pig except the squeal becomes a merchantable product. Because of the more restricted knowledge with respect to this type of cost accounting, I propose a little later on to deal with it in some of its major aspects.

The first classification previously mentioned requires no further comment. The problems of cost accounting involved in manufacture, of course, are very much more complex and it may be appropriate if I dwell on

these to some extent. In my own experience and from the practical standpoint of operating a factory, I have learned that the various activities of such a factory must be departmentalized, the heads of each deparment or division must be held responsible for their specific operation, and the whole must fit into a master management plan to ensure adequate control and efficiency. In considering how this can be brought about, the first essential is to evaluate in the most definite terms possible the sales program of the industry. To elaborate, Management must decide what it is going to sell, how much it is going to sell, at what price the product will be sold and the period of time in which the sales will be made. Once this basic program is available, it is possible to plan and schedule factory production to meet the sales program. We all realize, of course, that determination of policy frequently requires much estimating and it is much too easy to err in making such estimates or forecasts and for this reason it is advisable to allow a margin of safety. However, it seems to me that this is the basic responsibility of Management and that any hit-and-miss policy will have, from a production and cost standpoint, very bad consequences.

Assuming that the steps just mentioned have been taken, it then becomes necessary to consider the organization of the factory, the control of production, the control of materials, the control of costs, the utilizaion of manpower, the facilities of the factory (i.e. space, equipment, etc.), and to set a definite program and to acquaint everyone in the organization with his or her responsibilities and duties. You will note I have said that everyone should be acquainted with his or her responsibilities and duties — I repeat it for the sake of emphasis. I know that there is nothing more demoralizing than indecision and uncertainty arising out of failure to make everyone in the organization a part of the team. This, of course, involves such large subjects as labour relations and I become more and more convinced that Management profits greatly by enlisting the aid and support of everyone and by recognizing good performance by incentive rewards. I have brought this into the discussion realizing that it is perhaps not the particularly concern of the cost accountant, except from a recording and possibly an administrative standpoint, but feeling that the cost accountant frequently and deservedly influences Management in many of its decisions.

There is a point I would particularly like to emphasize: Many departments in an organization, including that of the cost accountant, have grown by force of circumstances rather than because of intelligent planning. I cannot over-emphasize the importance of evaluating the size of the job in hand or in prospect and making due provision for its requirements. Needs cannot be met on the spur of the moment but must be provided for at least some time in advance of requirements if a good job is to be done.

To illustrate the importance and advantage of forward planning, I take as an example the case of the Polymer Corporation Limited at Sarnia. The construction program involved the expenditure of approximately fifty million dollars, most of this construction taking place in a period of eighteen months. As units were completed, production commenced, so that there was a combination of construction and production problems

in the lap of Management at the same time. The construction program involved many engineering and construction firms and the production program involved the operation of approximately fifteen units operated by three management-fee companies under the general direction of the supervising company, the Polymer Corporation Limited. While there were, as you will appreciate, tremendous problems both from the standpoint of complexity and volume, it is to the credit of that company that they were all handled in a businesslike way, that contractors and operators were paid reasonably on time and that accounts kept reasonable pace both with construction and production. It has been my pleasure to receive some very complimentary remarks for my part in this performance and while I naturally was pleased to receive them, the great bulk of the credit accrues to the men and women who got behind Management and did their parts in the major undertaking. My only real contribution to the program was my part in planning and enlisting the aid and support of my very loyal and efficient associates. I realize this all sounds rather egotistical, but I mention it only to give emphasis to the importance of first, having a plan; second, providing the necessary personnel to execute the plan; and, third, adherence to the plan.

Previously, I have referred to the continuous process type of industry and the particular cost accounting problems that attach to it. Here, the accountant starts with a cost of basic raw materials from which many products are derived. Usually, but not always, there is one product produced which because of its volume and value assumes first importance. As an example of this, in the refining of petroleum, gasoline is usually the main product with a great variety of other materials being produced as by-products. However, in this particular industry the collective value of the numerous by-products is so great that a different treatment is employed than is the case in other industries where the by-product values are relatively small. In the petroleum industry, the raw material cost is represented by the value of a barrel of crude oil. This value, plus the cost of labour, other materials, catalysts, light, heat, power and overhead are distributed by apportionment against the sales realization or value of the total products, whereas in the latter case the sales realization of the minor by-products is credited to the cost of producing the main product. An example of this latter case is the production of Toluene as a by-product of the manufacture of Styrene in the plastics field.

I am afraid these rather rambling remarks and statements of principle give you very little material to work with. However, I felt it necessary because of the breadth of my subject to not much more than touch on the broad principles involved. If you wish, I shall be very glad to devote a short time to a question and answer period at the conclusion of these remarks in case any of you feel that I might be able to help with your specific problems.

In conclusion, I will try to state as briefly as possible the lessons the cost accountant has learned from the war. They are as follows:

1. Good cost accounting is an essential to good management.
2. Like industry, the cost accountant must be versatile and always ready to adapt his technique to the changing conditions of industry.

3. The cost accountant must constantly strive for new knowledge not only within his own field but in the very much broader field of industry generally.
4. The cost accountant must be prepared to assist and guide management not only by the holding of "post mortems" on what has happened, but much more constructively by employing his special skills and talents in the production of accurate forecasts and estimates.
5. He must be "cost conscious", work to a budget, and produce on time accurate cost statements which will be a source of ready reference to Management.
6. He must so organize himself, his staff, and his work that—
   (a) current work is up to date;
   (b) additional work may be undertaken on short notice;
   (c) he is prepared to play his part in the councils of management.

There is one very simple rule which I have found most useful and which I commend to you. That rule may be stated in these terms:

"Always so organize yourself, your staff and your work that you will always be able to do the day's work in that day."

Thus stated, the rule is simple. In practice it is sometimes exceedingly difficult for the simple reason that the work of any individual, division or department is so interdependent on the work of other individuals, divisions and departments. However, once the individual appreciates his responsibility and realizes that his personal lapse results in poor performance away and beyond the particular job he is doing, you will find he will exert himself to do his part. He will realize that the failure of a large organization arises out of the personal failure of its individuals. In brief, the spirit of teamplay is the constant objective.

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# Time and Motion Study

By JOSEPH G. HOBA, B.Sc.

**An Address Delivered to the Windsor Chapter of the Society of Industrial and Cost Accountants of Ontario on March 28th, 1946**

The present trend towards increased efficiency in all kinds of work has created a great interest in time and motion study. Industry has realized that the greatest opportunity for reducing production costs exists in the improvement of present manufacturing methods. Most important, in many cases after an analysis of the process and operations has been made, we have been startled how production can be increased without requiring further capital investment in new equipment.

Time and motion study is not merely, as many imagine, the act of walking up to an operator with stop watch in hand and telling him that you are going to check his job, then proceed to observe the time necessary to complete several pieces of work and by using simple arithmetic, arrive at a production figure for that operation.

Time and motion study is the analysis of the material, of the equipment, of the tools and very importantly a study of the methods used in the

performance of a task. Time and motion study is the basis for the determination of these four very important points:

First—To find the most economical way of performing the operation.

Second—To standardize the material, equipment, and tools.

Third—To determine the total time necessary to complete the task.

Fourth—If an improvement can be made in the performance of the operation, demonstrate to the operator how it can be done.

These four principles of time and motion study are the results of a great deal of development which dates back as far as 1881 when Dr. Frederick W. Taylor, then a young university graduate, began working in the machine shop of the Midvale Steel Company in Philadelphia. It was through his first efforts and perseverance that industry finally adopted this scientific form of management.

At the start, management was slow to realize how anyone, in many cases totally unfamiliar with the operation, could correct with the aid of a stop watch and observation, the guesswork of other more practical people, such as management, etc. Management did not bother to check into the mechanics of this new type of rate-setting.

On the other hand, the employee had been previously subjected to many forms of rate-setting and a new method did not seem any better to him than did the old methods used hitherto. Besides, the stop watch seemed to reduce him to the status of a machine. But he soon changed his mind when the thoroughness of this new method of rate-setting was fully outlined to him. Now many groups of men will not be satisfied unless they are working under a system based on time and motion study.

Let us consider in more detail, the forementioned principles of time and motion study; I repeat the first one:

**To find the most economical way of performing the operation:**

This demands a scientific study of the method, material, tools and equipment used, and since almost all operations require human effort and attention, a thorough analysis of the operator's movements to complete the task. This latter part is called more descriptively **motion study** since it requires the recording of all of the operator's movements. The purpose of this is to determine whether the movements are necessary, whether they can be eliminated, and whether a change in their arrangement can be made to reduce to a minimum this element of the study. **(See Exhibit "A").**

To illustrate one phase of the scientific check of the material, tools and equipment, let us assume that we have a wheel and the material used is steel. One operation on this wheel is drilling a hole 1" diameter and 1" deep. We are going to use a drill press suitable for the job. We immediately check the revolutions per minute and the feed per revolution of the drill. We then compare these figures against a set of standards which have been arrived at by thousands of observations. For efficient operation, we learn that the drill should have an R.P.M. of 420 and a feed of .015" per revolution. If the machine is correctly set up, we find that it will take .20 minutes or 12 seconds to complete the operation. This we check mathematically by dividing the depth of the cut by the feed per revolution, to find that it would take 66 revolutions of the drill to feed one inch. By dividing the R.P.M. by 66 we automatically derive the time required to

drill the hole. Let us further assume that with all other elements considered, we arrive at a production of 50 pieces per hour for this operation. The weight of the steel wheel is 100 pounds.

Now let us suppose that aluminum could be used to replace the steel. The time study man immediately realizes that he has decreased the weight by two-thirds or the wheel now weighs onyl 33 pounds. By reducing the weight handled, we have automatically eliminated part of the fatigue of the operator. The recommended standards for drilling a 1″ hole in aluminum suggest an R.P.M. of 1150, or almost three times that for steel. The feed per revolution remains the same. Now the drilling time is only .075 minutes or 4.5 seconds as compared to 12 seconds in steel, or a reduction of about 60%. This results in the production being set at 75 pieces per hour. For the steel wheel, the production was 50 pieces per hour.

From this analogy we can further qualify the first phase of time and motion study and that is that we must consider the economy in dollars and cents as well as that in motions, materials, tools and machinery. Although we might achieve great savings in personal time and machinery time, these might not be great enough to offset the higher cost per pound of aluminum when substituted for steel. Similarly, another example along this line can be made. In a large office an automatic pencil sharpener would be a valuable investment, but in a small office a hand-operated sharpener would be more economical.

We realize that what may be best in one case may not be most economical in another.

To consider all factors affecting the work and the operator which determine the most economical method for a particular task, is the requirement of the first part of the study.

**To standardize the material, equipment, and tools, is the next step.**

This means that the motions, material, jigs, fixtures, tools, gauges, equipment, and most important, the conditions surrounding the operator, are all recorded in a written report so that in the future, the same standards may be maintained.

**The third step—To set the time standard or determine the time resuired to complete the task:** (See Exhibit "B").

The most common way to determine this is to use a stop watch to time the elements into which the operation has been broken down and to take the average of a set of readings for each element. By adding together all the averages of the elements, we now have the time required to perform one complete operation. An adjustment is then made to take into consideration the skill of the operator who was timed. This will give us the base time or the length of time that would be required by an average operator to perform the task. Finally, a further adjustment is made to allow for personal time, fatigue, and delay. The resultant figure is called the standard time and is the one used by the costing department.

**Lastly—Training the operator:**

The study will be worthless if the proper manner of performing the operation is not demonstrated to the operator.

We now come to the very important question of how much time and money can we economically spend on the time and motion study of an operation. Four important principles govern this point:

1. The number of man hours used on the operation during a base period of a month or even a year.

2. The anticipated duration of the job.

3. The qualifications dependent on labour, and these are further subdivided into

(a) The basic wage rate.

(b) The rates of handling time to machine time.

(c) Unusual working conditions, special qualifications of the operator, labour union requirements, and so on.

4. The investment in the machines, tools, and equipment required for the job.

What shall we do with all the information that we have concluded from the study and with the standard minute cost for the operation? First, since we know the wage rate and the standard cost, we can readily set a cost for the article or the cost of a new job which would be similar.

Second, it is an up-to-the-minute check on the efficiency of the operation of the plant.

I have tried to give you the interesting details necessary to time and motion study work. Some of the points may have seemed very elementary, but that is the basis of this scientific form of management—elementary fundamentals, plus stop watch, plus common sense.

## EXHIBIT "A"

### TIME STUDY ENGINEERING

The following list of questions should be applied to all jobs being studied:

1. Can the part be eliminated?
2. Can the operation be eliminated?
3. Can the operation be combined with another operation?
4. Does the operator wait for his machine? Can the machine cycle be improved so that the operator does not have to wait for his machine, or can operator be given other useful work while waiting?
5. Is operation held to unnecesarily close inspection limits?
6. Can all work be confined to the normal work area?
7. Can material be gravity fed to the normal work area?
8. Is the work level slightly below elbow level?
9. Can holders be provided for loose tools to improve grasp?
10. Have all barriers been eliminated?
11. Can a drop discharge chute be used to advantage?
12. Can ejectors be used?
13. Can the work of the hands be transferred to the feet or knees to advantage?
14. Can springs, cams, air cylinders, etc., be substituted for manual work to advantage?
15. Could part (or parts) have been pre-positioned at previous operation?
16. Can part (or parts) be pre-positioned for next operation?
17. Are all pins bullet nosed? Are all holes ball mouthed?
18. Is change of control used?
19. Can double stations be used to advantage?
20. Is job properly lighted? Is job safe?

EXHIBIT "B"

## PRODUCTION ROUTING

Part Name REAR HUB Customer Sample Part No. 20039
Date March 25, 1946 Issue No. 1 No. of Sheets 1 Sheet No. 1 Plant Windsor

| Equip. No. | Equip. | Tool No. | Operation | Earning Rate | Register Number | Op. No. | Dept. | No. Men | Minutes Each | Production Per Hour |
|---|---|---|---|---|---|---|---|---|---|---|
| W504 | Baker | | Drill and Ream Taper Hole | | | | | | | |
| | | | Cut Off and Chamfer Large End | | W201 | 1 | 6 | 1 | 1.200 | 50 |
| W555 | B & O | | Cut Off Small End and Chamfer | | W202 | 2 | 6 | 1 | .600 | 100 |
| W1653 | American | | Broach Keyway | | W203 | 3 | 6 | 1 | .400 | 150 |
| W2137 | Fays | | Rough and Finish Turn Flange, Barrel, and Felt Washer Diameter | | W204 | 4 | 6 | 1 | 1.200 | 50 |
| W1981 | Bausch | | Drill 10 Holes and Remove Burrs | | W205 | 5 | 6 | 1 | .600 | 100 |
| W2281 | Garvin | | Tap 5 Holes | | W206 | 6 | 6 | 1 | .600 | 100 |
| | | | Wash | | W207 | 7 | 6 | 1 | .100 | 600 |
| | | | Repair Allowance — 5% | | | | | | .235 | |

Old Cost

Minutes

Total 4.935

Material

Av. Hourly Rate

Size
Material
Specified

Forging

Weight Per Bar

Pieces Per Bar

Weight Per 100

600 lbs.

Total Tool Set Up Cost

Standard Cost

# « STUDENT SECTION »

## HOW TO STUDY

By E. W. White, F.C.I.S., R.I.A.

This is a most difficult question. One cannot be dogmatic in answering it. It is not the same question when applied to pupils of different ages, or when applied to secondary school pupils and then to university students, or even to university students and then to adults without college or university training. The secret must be discovered by each individual for himself. Experience proves that the methodology of study adopted in any particular case depends on the type of mind and on the training.

Speaking generally there are two types of mind, namely, (a) the understanding mind and (b) the memorizing mind. When the mind is trained the two types will more or less blend. That is to say, each type when trained will take on the nature of the other type and, of course, will discharge the functions and manifest the characteristics of the other type. Training should help any mind to understand facts and principles and to retain for use acquired knowledge and the fruits of experience.

Before the principles of psychology were understood and applied as they are today, education was primarily a process of memory training. But as the sciences—natural and social—became more important and occupied a larger and still larger place in the scheme of things the old ideas of memory training had to give place for they were not correct and no longer held. Although memory training still persists in some quarters and is thought by those who favor it to be a mark of intellectual strength, yet modern educationists are agreed that one of the most important functions of education of the right kind is to train the student to think. Understanding predetermines thought.

Secondary school pupils have little opportunity to think or to learn how to think. Their chief business is to act like the queen bee in the hive and absorb, if they are able, all the pre-digested food in the form of knowledge and ideas presented to them by their teachers. Secondary school teachers are trained in methods of teaching. They are trained to prepare their lessons and to arrange their subject matter and illustrations with infinite care so the absorption process may be accomplished with the least effort on the part of the immature minds of their pupils. As young people approach maturity and enter a college or university to procure a higher education the methods of teaching are modified. The students are expected to exercise some initiative and to do a little thinking for themselves. Judging from appearances many students would prefer to have the spoon-feeding process continued indefinitely. It has been said with a modicum of truth that few students in the first two years of their college life do much thinking. During the second two years they may begin to do a little thinking. It must be admitted that often college professors are not as patient and sympathetic as they should be with those of their students

who try to think. The curriculum of a college or university is usually so circumscribed by term limits and examination requirements that neither professor nor student has an opportunity to plumb the depths of any subject or to do exploration work for himself in any field of thought. There is always so much work to be covered in a given time while no extra time is available in which to attempt to satisfy individual curiosity. It is because of these limitations that college training has been subjected to adverse criticism.

Thinking is a strange attribute of the human mind. Most men require aids in their thinking. Lord Oxford and Asquith in his autobiography said that certain members of his cabinet had to talk in order to think. Many men find that talking helps them to think. This is the reason that round-table discussions are often productive of results. Some people must write in order to think. Pencils and paper are valuable aids in developing thought processes. "One thought written is another thought born". Other people must have some device before them to help them to think. It may be a mathematical problem stated in figures or symbols, or an instrument or a mechanical structure that is conducive to thought. Place an engine before an engineer and he begins to think and think accurately. Comparatively few occidental minds have the oriental power of abstract thought. The differences in the types of minds that dominate the east and the west may be stated in a sentence. The oriental mind thinks thoughts about thoughts, while the occidental mind thinks thoughts about things. The vast majority of men and women prefer to do something with their hands and as they work their thinking processes develop. Any kind of thinking uses a great deal of nervous energy. This may be the reason why some people prefer not to think at all. Concentration is an exhausting process. Fixing the attention on any point or subject is seldom easy for the novice; but the habit may be acquired by practice. One should train himself to seek for truths and facts and then estimate and weigh each one without bias or prejudice. The truth taken by itself is not always easy to find. The evidence must be sifted and the medium of transmission should be examined and studied with care.

Each individual must discover for himself how to study and how to master a given subject. A man with a trained mind may, with the necessary effort master any subject to which he devotes attention. At one time it was thought that the highest degree of mental training and culture could be acquired only by following the courses and methods prescribed by academic tradition; but experience proves that to fix such limits is an error of the first magnitude. Natural gifts vary, the appeal may be different, the methods of study and the subjects studied may be dissimilar; but the results, if the work be honestly done, will be equal. I know a college professor—an able man, an inspiring teacher and a famous writer—who copied out by hand everything he attempted to master. He wrote down everything he wanted to remember. I have known him to copy out a whole chapter from a book. If he received am important letter he copied it out in a note book in order to impress its contents on his mind. That was his method. Some college students follow a similar plan. In divinity schools students sometimes copy over and over important passages from the Scriptures until they fix

them in exact form in their minds. In schools of languages a like process is adopted. If a phonograph is used the records are repeated again and again until the ear is able to distinguish sounds and the form of expression becomes fixed in the sub-conscious mind. That is a process of memory training. It is not thinking or interpreting or understanding. It is not a method to be endorsed and applied indiscriminately. Whatever plan or method the student decides to adopt should be used only where and when it is applicable. Any system worthy of consideration should have for its object the easy acquisition of knowledge. But this is not all. It should help the student to broaden his mental horizon and make him possessor of himself. It should set free his faculties and fill him with resources. It should help him to do more work and better work. If these results are not produced then change the system.

Carry a note book in your pocket. If some particular thing is to be recalled it is often a good idea to make a note of it. The act of writing fixes it in the memory. If you are thinking out a subject or writing an article or essay some idea may suggest itself which should be written down. It may start a train of ideas that will be helpful later. What is easy for one man may be difficult for another. Dictating a letter requires a different mental process from writing one. Few newspaper men can dictate an editorial or a leading article, while it is comparatively easy to dictate a newspaper story. In one instance one's own thought is used, but in the other the thoughts, words or acts of another are recorded.

The question before us is: How shall we study? How shall we learn to force the mind to concentrate on a given subject until we master it? The age of the student, providing he is mature and in good health, has little or nothing to do with the answer. It is learning how to study that is the controlling factor. If the student learns how to study he can master anything. Some people have difficulty with mathematics, some with nomenclature, some with language and so on, but that does not prove anything except the particular bent of their minds. Some people think in figures, others in words, still others in images. Pictures and images are used to help people to master systems of memory training. These systems have some value, but are often more remunerative for display purposes than for daily use.

For the sake of argument and illustration let us assume that without the help of an instructor we are trying to master a subject that is new to us. What shall we do? We have a well prepared and well written text-book—such books are to be had—with all the steps carefully put in proper sequence and all the points arranged in logical order.

Let us then: (1) Read through the book, like reading the books of the Bible and making a note of the outstanding events; or read as you would read a story or a newspaper article. As you read look up in a good unabridged dictionary the meaning of all new or unfamiliar words; if geographical places are mentioned find out where they are. Do not pass over any thing that you do not know. Look things up. Learn where and how to find what you want to know. Any references in the text to other books should be noted and followed up at the first opportunity. If there are questions placed by the author at the end of the chapters glance over these

as you finish your first reading and ask yourself how many of the questions you can answer. Go through your book in this rough way, try to get the author's point of view and his outline. If other books on the same subject are assigned for reference purposes dip into them also. Some books are not worth more than one reading. Such books are not to be classed as text-books.

(2) Take up your text-book for a second reading. Read the first chapter. Mark in the margin of your text all apt or strong expressions. When a sentence seems to give the key to the thought, write "Note this". Make in your note book a memo of the substance of each paragraph just as you would if you heard the same thing spoken in a lecture. Your notes may be in your own words or partly in your own words and partly in the author's words. Go through the book a second time in this manner. Try to understand each paragraph as you pass along. As you finish reading review your notes and summarize them. It may be that by the end of the second reading you have spent all the time you can afford or need to spend on your text. If you are not satisfied read a third time.

In taking notes try to reduce the amount of writing required. Try taking notes frequently; avail yourself of every chance that comes to you. If you hear a conversation sit down afterwards and note the substance of it. When you return home after church reproduce the sermon. After a time a few words or sentences in your note book will be all the notes that you require. A secretary should be able with brief notes to make next day an accurate record of all the business done at a meeting. He should not only record the facts and figures, but should have expression to the sense and spirit of the meeting and put all these essentials into the transcribed minutes.

Let us return to our text-books. (3) Read a third time. As you read ask yourself as many questions as you can on each paragraph. Write out these questions and their answers. This is important. As you pass through your text-book each time, especially the second and third, try to find the correct answers to the questions submitted by the author. Other questions may suggest themselves to your own mind. Note these and try to find answers for them. Some parts of your text-book may require rereading several times. If the subject be economics this will probably be the case. Take your supplementary texts and your reference books and go through them asking yourself questions and writing out the answers. The next step is to lay the subject aside for a time and take up another study. Return and review your notes and your questions. Get some old examination papers on the same subject and work out the answers. Review all your notes once more before going up for examinations.

The foregoing plan involves more thorough work than is done by the average college student. Too often he leans on the instructor. May I offer a few additional hints and suggestions? When engaged in hard study do not begin too soon after you have eaten a hearty meal. Rest ten or fifteen minutes in each hour. During the rest periods read some good literature, poetry or prose. Study in a quiet, well ventilated room. Sit in a comfortable chair. Do not spoil your eyes by reading or working in a poor light. Let the worries of business wait till the next day. Postpone social engage-

ments. Plan to take regular physical exercise and try to keep fit. As you work through your books look over the index from time to time and pick out a theme, then without referring to the chapters or pages indicated, write a short article or essay on the subject selected. Make a rough outline, presenting your ideas in their proper order. Write out your theme using the best language and sentence construction of which you are capable. Write legibly. Capitalize and punctuate your sentences carefully. Observe paragraph construction. Cultivate good English. After you have put your best effort into your theme, compare what you have written with your auhorities. You will soon find that you not only know your subject, but you have made it your own.

In your hours of leisure read the English classics. Read essays, plays and great poems. Read history. Read the Bible, which is a wonderful storehouse of English literature. Read for language and for thought. Read to get your ears attuned to the music of words. Read Macaulay's essays, the essays of Addison and Emerson; read Shakespeare, Wordsworth, Tennyson, Browing, St. Paul's epistles, etc. Make books your friends and you shall have friends indeed.

## COST ACCOUNTING

By A. V. HARRIS, C.A.

Weldmill Co. Ltd., a manufacturing company has prepared the following Balance Sheet as at June 30, 1945.

| Assets | | Liabilities | |
|---|---|---|---|
| Cash in Bank | $ 60,000.00 | Accounts Payable | $ 48,000.00 |
| Accounts Receivable | 42,000,.00 | Reserve for Depreciation | 125,000.00 |
| Inventories | 60,000.00 | Capital | 200,000.00 |
| Fixed Plant | 360,000.00 | Earned Surplus | 149,000.00 |
| | $522,000.00 | | $522,000.00 |

The Company has been offered the opportunity of production of a new article "T.K.", as a subcontractor on a new contract. The Company's directors favor the new production and wish to commence on July 1, 1945, but before doing so request you to prepare:

(1) a financial cash budget statement on the new basis for the months of July, August, September and October.

(2) a Balance sheet as at October 31, 1945, giving effect to the following:

(a) The present inventories would be useless in the new production but can be disposed of at book value for cash on a basis of 20% per month.

(b) Accounts Receivable at 30 June, 1945, will be collected in full

in three months, one-third each month, and Accounts Payable at the same date, in the same manner.

(c) In conversion of the plant to produce article "T.K.", it will be necessary to halt their present production and for the month of July during the change over cash overhead expenses of $9000.00 will require to be paid. Also to supplement their present fixed plant, new equipment to cost $65,000.00 will be installed at cost of $7000.00. Installation charges must be paid at once, but payment on new equipment will be on a basis of 20% by July 31, and 10% monthly thereafter.

(d) The only available estimate of cost of article "T.K." is one on a standard cost basis, showing cost per unit of $13.00 for Direct Materials, $20.00 for Direct Labour and $18.00 for Manufacturing expense and general overhead. In the latter figure is an item of depreciation of $4.00, which should be eliminated and replaced by the Company's own actual depreciation at 20% per annum for purposes of Profit and Loss.

Using these figures as a basis, and the fact that materials must be on hand in advance to the extent of one month's production, to be paid for in the following month, that Labour and cash Manufacturing expense and general overhead must be paid for in the month incurred, assume that the Company can produce and ship 1440 units in its first producing month and 1600 units thereafter.

Inventories of Work in Progress and Finished Goods will be negligible and may be disregarded.

The Comapny will receive payment from the contractor at the rate of $60.00 per unit in the month following delivery.

Solution to Problem Problem 2

**Weldmill Company Limited**

**Financial Cash Budget for the Four Months Endded 31st October, 1945**

| | July | August | September | October | Total | (Memo only) Balance at Oct. 31st |
|---|---|---|---|---|---|---|
| **Cash Receipts** | | | | | | |
| Accounts Receivable — old | $ 14,000 | $ 14,000 | $ 14,000 | | $ 42,000 | |
| Inventories — old | 12,000 | 12,000 | 12,000 | $ 12,000 | 48,000 | $ 12,000 |
| new | | | | | | |
| Accounts Receivable | | | | | | |
| Sales July ..... nil | | | | | | |
| Aug. ..... 1440x$60 | | | 86,400 | | 86,400 | |
| Sept. ..... 1600x$60 | | | | 96,000 | 96,000 | |
| Oct. ..... 1600x$60 | | | | | | 96,000 |
| Total Receipts | $ 26,000 | $ 26,000 | $ 112,400 | $ 108,000 | $ 272,400 | |
| Balance 1st of month | 60,000 | 41,000 | (23,180) | (8,480) | 60,000 | |
| | $ 86,000 | $ 67,000 | $ 89,220 | $ 99,520 | $ 332,400 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | $ 86,000 | $ 67,000 | $ 89,220 | $ 99,520 | $ 332,400 | |

**Cash Payments**

| | | | | | | |
|---|---|---|---|---|---|---|
| Accounts Payable — old | $ 16,000 | $ 16,000 | $ 16,000 | | $ 48,000 | |
| Overhead Expenses — July | 9,000 | | | | 9,000 | |
| Capital Assets Installation Costs | 7,000 | | | | 7,000 | |
| Assets | 13,000 | 6,500 | 6,500 | $ 6,500 | 32,500 | 32,500 |
| Inventories re Work Produced — New | | | | | | |
| July 1440x$13.00 | | 18,720 | | | 18,720 | |
| Aug. & subsequent 1600x$13 | | | 20,800 | 20,800 | 41,600 | 20,800 |
| Labour re Work Produced — New August 1440x$20 | | 28,800 | | | 28,800 | |
| Sept. & subsequent 1600x$20 | | | 32,000 | 32,000 | 64,000 | |
| Overhead re Work Produced—new (Cost) August 1440x$14 | | 20,160 | | | 20,160 | |
| Sept. & subsequent 1600x$14 | | | 22,400 | 22,400 | 44,800 | |
| Total Disbursements | $ 45,000 | $ 90,180 | 97,700 | 81,700 | 314,580 | |
| Balance on hand end of month | 41,000 | (23,180) | (8,480) | 17,820 | 17,820 | |
| | $ 86,000 | $ 67,000 | 89,220 | 99,520 | 332,400 | |

## WELDMILL COMPANY LIMITED
## BALANCE SHEET
## AS AT OCTOBER 31st, 1945

### ASSETS

| | | | |
|---|---|---|---|
| **Current Assets** | | | |
| Cash in Bank | ..... | $ 17,820 | ..... |
| Accounts Receivable | ..... | 96,000 | ..... |
| Inventories — old | $ 12,000 | ..... | ..... |
| — new | 20,800 | 32,800 | |
| | | | $ 146,620 |
| **Fixed Assets** | | | |
| Fixed Plant | ..... | 360,000 | ..... |
| Additions | | 72,000 | |
| | | | 432,000 |
| | | | $ 578,620 |

### LIABILITIES

| | | | |
|---|---|---|---|
| **Current Liabilities** | | | |
| Accounts Payable | | $ 20,800 | |
| Purchase of New Equipment | | 32,500 | |
| | | | $ 53,300 |
| **Reserve for Depreciation** | | | |
| Balance 30 June | | 125,000 | |
| July 1/12 x 20% of 360,000 | $ 6,000 | | |
| Aug. - Oct. 3/12 x 20% of 432,000 | 21,600 | 27,600 | |
| | | | 152,600 |
| **Capital** | | | 200,000 |
| **Surplus** | | | |
| Balance 30 June 1945 | | 149,000 | |
| Profits per Card Statement 4640 x $13 | $ 60,320 | | |
| Less July Overhead | 9,000 | | |
| Depreciation | 27,600 | 36,600 | 23,720 |
| | | | 172,720 |
| | | | $ 578,620 |

**Note** Details inserted on Balance Sheet to show make up of figures.

| | | |
|---|---|---|
| Note | Details inserted on Balance Sheet to show make up of figures. | $ 578,620 |